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Erwin Hartmann

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EXAMINER

PATEL, VISHAL A

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,518	<b>Applicant(s)</b> HARTMANN ET AL.	
	<b>Examiner</b> Vishal Patel	<b>Art Unit</b> 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 4/16/08.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-11 and 13-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of specie I, claims 1-11 and 13-24 in the reply filed on 4/16/08 is acknowledged. Furthermore claim 5 is withdrawn as directed to a non-elected invention. In conclusion the claims that are elected are 1-4, 6-11 and 13-24 and the withdrawn claims are 5 and 12.

This election is made final.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 13, “,” comma after the radial fins makes the claim unclear. What is applicant trying to claim by "the radial fins, axially ...cavity,"?

Claim 1, line 14, “,” comma after the first cavity makes the claims unclear.

Claim 3, line 2, “the largest clear radial distance”, this limitations lacks antecedent basis.

Claim 4, line 2, “, which” should be replaced by that.

Claim 4, line 6, “, which”, should be replaced by that.

Claim 4, lines 2 and 6, "a first radial fin" and "a second radial fin", unclear how many radial fins applicant is trying to claim in view of claim 1.

Claim 6, line 3, “the radial fins”, should be replaced by the at least two radial fins.

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Applicant should correct grammar errors, examples are shown above and these occur numerous times in most of the claims. E.g. Claim 6, line 3 “,”; claim 9, line 2, “,” and so on.

Claim 8, lines 3 and 5, “the first radial fin” and “the second radial fin”, lacks antecedent basis.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 8-11 and 13-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Klopak (US. 2,245,281).

Klopak discloses a seal (20 and 56) with deflector rings (e.g. 20 and 56) which are arranged concentrically with respect to one another about a common axis of rotation (figure 1) and without contact with one another, at least two radial fins (e.g. fins 24 on deflector ring 20), which are axially adjacent to one another, being formed at a first deflector ring (e.g. 20) of the deflector rings, and the radial fins being arranged without contact with a second deflector ring (e.g. 56) of the deflector rings, characterized in that an annular first cavity (cavity formed between two fins 24) is formed at least between two of the radial fins which are axially adjacent to one another and the second deflector ring, the radial fins, axially separated from one another by the first cavity (the cavity), being positioned freely opposite one another at the cavity, and the first cavity being delimited in one radial direction by the second deflector ring (figure 1), which adjoins the radial fins and in an opposite radial direction by the first deflector ring. A radial clearance distance at least in the first cavity between the first deflector ring and the second deflector ring exist (radial

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clearance between two radial fins 24 and inner surface of 56 that has radial fins 26 extending from the inner surface). For the figures it appears that the radial clearance distance is larger than the distance between the two radial fins 24. Applicants refers to first, second and third radial gaps but only a portion of the gap is larger than the gaps.

Regarding claim 2: The second deflector ring at least partially surrounds the first deflector ring on the radially outer side (e.g. the ring 56 surrounds the first deflector ring), the first deflector ring being rotatable relative to the second deflector ring about the axis of rotation (the rings are capable of relative rotation).

Regarding claim 4: The seal having a first radial fin, which is arranged furthest axially outward at the seal (fin closest to 60) and at least partially closes off the seal with respect to an environment surrounding the seal in the axial direction is radially longer than a second radial fin (fin second closest to 60), which lies axially opposite the first radial fin at the cavity.

Regarding 8: The first cavity merges axially into a radial first annular gap between the first radial fin and the second deflector ring and into a radial second annular gap between the second radial fin and the second deflector ring (figure 1 shows this).

Regarding claim 9: The first annular gap, on an axially outer side of the first radial fin between the first deflector ring and the second deflector ring opens out freely into an environment axially surrounding the seal (e.g. figure 1 shows that one radial fin opens to one environment and second radial fin opens to another environment).

Regarding claim 10: The first annular gap (e.g. gap formed by the radial fin that is closest to 60 and the inner surface of the deflector ring) is radially narrower than the second annular gap (e.g. gap formed by the radial fin second closest to 60 and the inner surface of the deflector ring).

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Regarding claim 11: The second annular gap runs radially closer to the axis of rotation than the first annular gap (e.g. this would be the case since the radial fins have different lengths from the axis of rotation).

Regarding claim 13: The second annular gap opens out into a second cavity, the second cavity, which is annular in form, being at least partially enclosed by the first deflector ring (figures 1-3) and the second deflector ring.

Regarding claim 14: The second radial fin and a third radial fin (fin second closet to 60), at the first deflector ring lie freely axially opposite one another, separated from one another by the second cavity (e.g. second cavity formed between the fin first closet to 60 and the fin that is second closet to 60).

Regarding claim 15: The second cavity (the second cavity) merges axially into the radial second annular gap and into a third annular gap (third annular gap formed between the inner surface of the second deflector ring and the fin second closet to 60) between the third radial fin (the fin second closet to 60) and the second deflector ring.

Regarding claim 16: The first annular gap is radially narrower than the second annular gap, and in that the second annular gap is radially narrower than the third annular gap (this is the case since the third fin has less length than the first and second fins).

Regarding claim 17: The first annular gap is further away from the axis of rotation in the radial direction than the second annular gap, and in that the second annular gap is further away from the axis of rotation in the radial direction than the third annular gap at its radially narrowest point (figures show this since the fins have different lengths).

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Regarding claim 18: The first radial fin is radially longer than the second radial fin, and in that the second radial fin is radially longer than the third radial fin (this is clearly shown in figure 1).

Regarding claim 19: The third annular gap, starting from the second cavity, runs initially radially between the third radial fin and the second deflector ring and then runs onward, in the direction of the axis of rotation on a curved path between the third radial fin and the second deflector ring and finally, on a side of the third radial fin which is axially remote from the second radial fin, is formed axially between the third radial fin and the second deflector ring (this is the case as shown in figures 1-3).

Regarding claim 20: The third annular gap, starting from the second cavity, leads to a third cavity in the seal, the third cavity being enclosed at least by the first deflector ring and by the second deflector ring (figure 1).

Regarding claim 21: The third annular gap runs out in the radial direction via a second collection channel which runs around the axis of rotation, the second collection channel being formed at the second deflector ring, and in this arrangement the first deflector ring at least partially projecting axially beyond the second collection channel on the radially outer side (figure 1).

6. Claims 1-2 and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Keller et al (US. 20040100029 A1).

Keller discloses a seal with deflector rings (e.g. 10 and 7) which are arranged concentrically with respect to one another about a common axis of rotation (figure 2) and without contact with one another, at least two radial fins (e.g. fins forming 16), which are axially adjacent to one another, being formed at a first deflector ring of the deflector rings, and the radial fins being arranged without contact with a second deflector ring (e.g. 10) of the deflector rings, characterized in that

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an annular first cavity (cavity formed between two fins) is formed at least between two of the radial fins which are axially adjacent to one another and the second deflector ring, the radial fins, axially separated from one another by the first cavity (the cavity), being positioned freely opposite one another at the cavity, and the first cavity being delimited in one radial direction by the second deflector ring (figure 2), which adjoins the radial fins and in an opposite radial direction by the first deflector ring. A radial clearance distance at least in the first cavity between the first deflector ring and the second deflector ring exist (radial clearance between portion 15 and portion having 19 and 20).

Regarding claim 2: The second deflector ring at least partially surrounds the first deflector ring on the radially outer side (e.g. the ring 10 surrounds the first deflector ring), the first deflector ring being rotatable relative to the second deflector ring about the axis of rotation (the rings are capable of relative rotation).

Regarding claim 22: The second deflector ring at least partially surrounds the first deflector ring on the radially outer side, and in that at least one seal with at least one elastic sealing lip (e.g. 23) starts from the second deflector ring, the sealing lip being radially prestressed against a shaft (4).

Regarding claim 23: The sealing lip (e.g. 23) is arranged axially next to the first deflector ring, which is seated on the shaft and delimits the seal on the axially outer side (fig. 2). The length of the sealing lip is greater than thickest point transversely with respect to this length.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person



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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klopak.

Klopak discloses the claimed invention except that the radial clearance is 1.4 times the axial distance between the radial fins. Discovering an optimum range of a result effective variable involves only routine skill in the art. In re Kulling, 895 F.2d 1147, 14 USPQ 2d 1056. Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the radial clearance to be 1.4 times the axial distance between the radial fins, to provide mechanical expedience and as a matter of design choice.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klopak in view of Skumawitz et al (US. 20040119238).

Klopak discloses the invention as claimed above but fails to disclose the radial fins are inclined with respect to the axis of rotation, the axial distance in the cavity between the annular surface and between the axially opposite, adjacent radial fin increasing with increasing radial distance to the second deflector ring. Skumawitz discloses to have the radial fins (15 or 9) and cavity between the fins inclined as shown in figures 1-2 and further surfaces (e.g. 13) that face the radial fins also inclines (e.g. 13) as shown in figure 2. It would have been obvious to one having ordinary skilled in the art at the time of the invention to have the fins or the cavity surface of Klopak be inclined as taught by Skumawitz to provide truncated hollow cone which creeps in.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klopak and Skumawitz.

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Klopak and Skumawitz disclose the claimed invention except that the annular surface is inclined at an angle of 70 to 85 degrees with respect to the rotation axis. Discovering an optimum range of a result effective variable involves only routine skill in the art. In re Kulling, 895 F.2d 1147, 14 USPQ 2d 1056. Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the incline surface be at an angle of 70 to 85 degrees, to provide mechanical expedience and as a matter of design choice to the angle of the truncated hollow cone which creeps in.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keller.

Keller discloses the claimed invention except that the length is at least 2.5 times as long as the thickest point transversely with respect to this length. Discovering an optimum range of a result effective variable involves only routine skill in the art. In re Kulling, 895 F.2d 1147, 14 USPQ 2d 1056. Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a matter of choice in design. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the length to be 2.5 times the thickest point transversely with respect to this length, to provide mechanical expedience and as a matter of design choice.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Orlowski, Hubbard et al, Webster, Ingistov and Kobayashi et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is 571-272-7060. The examiner can normally be reached on 6:30am to 8:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer H. Gay can be reached on 571-272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/V. P./  
Primary Examiner, Art Unit 3676

/Vishal Patel/  
Primary Examiner, Art Unit 3676